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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/066,516	01/30/2002	Herbert F. Cattell	10010010-1	3692

7590 03/24/2004

AGILENT TECHNOLOGIES, INC.
Legal Department, DL429
Intellectual Property Administration
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EXAMINER	
MAHATAN, CHANNING	
ART UNIT	**PAPER NUMBER**
1631	

DATE MAILED: 03/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/066,516	CATTELL, HERBERT F.	
	Examiner	Art Unit	
	Channing S Mahatan	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-38 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-38 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 30 January 2002 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 1 Sheet.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

ART UNIT DESIGNATION

The Group and/or Art Unit designated for this application has changed. Applicants are hereby informed that future correspondence regarding this application should be directed to Group Art Unit 1631.

CLAIMS UNDER EXAMINATION

Claims herein under examination are claims 1-38.

Claims Rejected Under 35 U.S.C. § 112 2nd Paragraph

The following is a quotation of the second paragraph of 35 U.S.C. § 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-21 and 36-38 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

VAGUE AND INDEFINITE

Claims 1, 12, 16, 18, and all claims dependent therefrom are indefinite due to the lack of clarity of the claim language failing to recite a final process step, which agrees back with the preamble. For example, the preamble of claim 1 states it is "A method…", however, the claim recites a final step of "retrieving saved signal data for chemical arrays from the memory and extracting feature characteristics therefrom, wherein the saved signal data for a chemical array is extracted while another chemical array is being read" (lines 5-7). It is unclear if the method is to: 1) retrieve saved signal data; or 2) extract feature characteristics from the saved signal data. While minor details are not required in method/process claims, at least the basic step must be

recited in a positive, active fashion. Clarification of the metes and bounds of the claim is requested via clearer claim wording.

Claims Rejected Under 35 U.S.C. § 103

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-38 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ermolaeva et al.; taken in view of Bowtell; further in view of Affymetrix® 428™ Array Scanner or GenePix™ Pro Array Analysis Software/GenePix™ 4000B Array Scanner.

Ermolaeva et al. describes a microarray data management and analysis system (ArrayDB), wherein a relational database was designed to allow for flexibility in data input and the generation reports through a web-browser interface (Abstract; page 20, left column, lines 9-12; and page 23, left column, lines 31-36). The system is capable of storing, retrieving, and analyzing microarray experiment information, through the integration of multiple processes involved in microarray expression experiments (i.e. data management, user interface, robotic printing, array scanning and image processing) (page 20, right column, lines 9-14). Data stored in the Array DB system can include information about the experimental resources, experimental parameters and conditions, and raw and unprocessed hybridization results (page 20, right column, lines 14-32). The authors provide a schematic overview of the ArrayDB information management system, wherein hybridization arrays are read/scanned, raw image files are stored on a disk (i.e. memory), the files are then transferred to the array database (functions as a hub;

via a network/web-interface), and image processing software can retrieve and analyzed (feature characteristic extraction of the raw images) by other computer software packages; via a network/web-interface (Figure 2). In addition to retrieving and analyzing patterns and relationships amongst individual experiments, the database system supports the analysis of data files from multiple experiments (i.e. multiple scanners/reading stations networked in serial or in parallel; further explanation is provided for below) (page 21, right column, lines 5-13). The web-user interface to the ArrayDB system allows for the retrieval of distinct types of information (i.e. clone data, intensity data, analysis results, corresponding identifiers on the array, etc) (page 21, left colum, lines 5-11). However, Ermolaeva et al. does not teach specific devices (i.e. microarray readers/scanners) and specific software for extraction of feature characteristics from microarrays.

Bowtell reviews the specifications of several specific readers/scanners and software provided for analysis of microarrays (pages 31-32, beginning on the right column, line 6; and Table 5). However, Bowtell does not specifically discuss the specific methodology of linking such apparatuses by an array data management system (i.e. via a network/web-interface) such that an array is read while the feature characteristics of another array image file is extracted. It should be noted Bowtell references Ermolaeva et al. for the teaching of array data management systems (page 32, right column, lines 28-31; and cited reference 31).

Affymetrix® 428™ Array Scanner is cited herein to establish array reader/scanner, at the time of the invention, contain computer processors (i.e. 500 MHz CPU Pentium®-III) and data storage memory devices (i.e. 256 MB RAM, 20 GB hard drive, Internal Zip Drive).

The GenePix™ Pro Array Analysis Software/GenePix™ 4000B Array Scanner is cited herein to establish array readers/scanners, at the time of the invention, contain computer processors and the provided software for the extraction of feature characteristics from arrays. The system provides analysis software and a scanner for the acquisition and analysis of data from all types of arrays (i.e. nucleic acids, proteins, tissue, and cells) (page 4, System Features). The GenePix™ Pro Array Analysis Software extracts: 1) numbers of features and background pixels; 2) mean and median pixel intensities; ratio of mean and median pixel intensities; 3) medians and means of pixel-by-pixel ratios; 4) regression ratios; 5) sum of mean feature pixel intensities, and sum of median feature pixel intensities; 6) standard deviations of feature and background pixel intensities (page 3, right column, lines 17-27). However, the GenePix™ System does not teach an array management system, such that readers/scanners and feature extraction analysis are networked/web-interfaced through an array database (refer to Ermolaeva et al.).

Thus, it would have been obvious to someone of ordinary skill in the art at the time of the invention to practice Ermolaeva et al. array data management system; in view of Bowtell array readers/scanners and analysis software; further in view of Affymetrix® 428™ Array Scanner or GenePix™ Pro Array Analysis Software/GenePix™ 4000B Array Scanner such that multiple chemical arrays from multiple array readers/scanners are read/scanned either in serial or in parallel, saving the raw image file (i.e. signal data) in memory (i.e. temporary storage disk), transferring the raw image files into the array database, retrieving raw image file(s) from said array database (via a network/web interface) thereby extracting feature characteristics while another array is read/scanned (i.e. serial). For clarification of scanners (the number of scanners

being two or more) and extraction of features (i.e. analysis) performed in parallel are viewed as all scanners and extraction of features performed at the same time, whereas scanners and extraction of features performed in serial are viewed as the scanning of an array 1 at a scanner 1, storing the raw image file of array 1 in the array database, and as the raw image file of array 1 is extracted for feature characteristics an array 2 at scanner 2 is read, and so forth; such that the timing of scanning and feature extraction are different from one another (i.e. claim 1). Thus, the coordination of multiple array readers/scanners to process multiple arrays, wherein one array is read while another array image file is extracted for feature characteristics (via a network/web interface) would have been obvious to one of ordinary skill in the art to reduce the processing time of multiple arrays individually.

No Claims Are Allowed.

EXAMINER INFORMATION

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993) (See 37 C.F.R. § 1.6(d)). The CM1 Fax Center number is either (703) 872-9306.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Channing S. Mahatan whose telephone number is (571) 272-0717. The Examiner can normally be reached on M-F (8:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael P. Woodward, Ph.D., can be reached on (571) 272-0722.

Any inquiry of a general nature or relating to the status of this application should be directed to Legal Instruments Examiner, Tina M. Plunkett, whose telephone number is (571) 272-0549 or to the Technical Center receptionist whose telephone number is (703) 308-0196.

Date: March 21, 2004

Examiner Initials: CSM

Marianne P. Allen

MARIANNE P. ALLEN
PRIMARY EXAMINER

3/22/04

AU1631